## Meteorcomm LLC.

**TEST REPORT FOR** 

Base 24V Model: 63030-24

**Tested To The Following Standards:** 

Spurious Emissions Only In Accordance With FCC Part 80 and Part 901

Report No.: 94195-12

Date of issue: March 22, 2013



This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

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## **TABLE OF CONTENTS**

3
3
3
6
6
18
18
29
29
20



## **ADMINISTRATIVE INFORMATION**

## **Test Report Information**

REPORT PREPARED FOR: REPORT PREPARED BY:

Meteorcomm LLC. Dianne Dudley
1201 SW 7th Street CKC Laboratories, Inc.
Renton, WA 98057 5046 Sierra Pines Drive
Mariposa, CA 95338

Representative: Fred Cleveland Project Number: 94195

Customer Reference Number: 12399

**DATE OF EQUIPMENT RECEIPT:** March 13, 2013 **DATE(S) OF TESTING:** March 13, 2013

## **Report Authorization**

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.

Steve Behm

Director of Quality Assurance & Engineering Services CKC Laboratories, Inc.

Steve 7 Be

Page 3 of 30 Report No.: 94195-12



# **Test Facility Information**



Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S): CKC Laboratories, Inc. 22116 23rd Drive S.E., Suite A Bothell, WA 98021-4413

## **Software Versions**

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.00.14
Immunity	5.00.07

# **Site Registration & Accreditation Information**

Location	CB#	TAIWAN	CANADA	FCC	JAPAN
Bothell	US0081	SL2-IN-E-1145R	3082C-1	318736	A-0148

Page 4 of 30 Report No.: 94195-12



## **SUMMARY OF RESULTS**

# Standard / Specification: FCC Part 80 & Part 90I

Description	Test Procedure/Method	Results
Radiated Spurious Emissions	FCC Part 80 / 47 CFR §80.211(f)	Pass
Radiated Spurious Emissions	FCC Part 90I / 47 CFR §90.210(b)	Pass

# **Conditions During Testing**

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

<b>Summary of Conditions</b>	
None	

Page 5 of 30 Report No.: 94195-12



# **EQUIPMENT UNDER TEST (EUT)**

#### **EQUIPMENT UNDER TEST**

Base 24V Programmable Power Supply

Manuf:Meteorcomm LLC.Manuf:AmetekModel:63030-24Model:XG100-17MGASerial:63B2000101BKSerial:1107A05456

**GPS Antenna** 

Manuf: SYNERGY SYSTEMS, LLC

Model: SMA-35 Serial: NA

### **PERIPHERAL DEVICES**

The EUT was tested with the following peripheral device(s):

<u>Laptop Power Supply</u>

Manuf: DELL Manuf: DELL

Model: Latitude E6410 Model: FA90PE1-00

Serial: Meteorcomm AN2421 Serial: NA

**Mouse** 

Manuf: DELL

Model: M-UAR DEL7

Serial: NA

Page 6 of 30 Report No.: 94195-12



# **FCC PART 80**

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) 47 CFR Part 80 for the filing of applications for licenses to operate radio facilities in the maritime services.

## **Part 80 Radiated Spurious Emissions**

### **Test Data Sheets**

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: Meteorcomm LLC.

Specification: 47 CFR §80.211(f) Spurious Emissions

Work Order #: 94195 Date: 3/13/2013 Test Type: **Maximized Emissions** Time: 08:57:14 Equipment: Base 24V Sequence#: 8

Tested By: Steven Pittsford Manufacturer: Meteorcomm LLC.

Model: 63030-24 S/N: 63B2000101BK

#### Test Equipment:

311101111				
Asset #	Description	Model	Calibration Date	Cal Due Date
AN03227	Cable	32026-29080-	5/2/2011	5/2/2013
		29080-84		
AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
AN01271	Preamp	83017A	8/18/2011	8/18/2013
AN03123	Cable	32026-2-29801-	10/14/2011	10/14/2013
		12		
ANP05546	Cable	Heliax	9/7/2012	9/7/2014
AN02308	Preamp	8447D	4/3/2012	4/3/2014
AN01993	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014
ANP05360	Cable	RG214	12/3/2012	12/3/2014
ANP05366	Cable	RG-214	10/14/2011	10/14/2013
AN00052	Loop Antenna	6502	5/16/2012	5/16/2014
ANP05965	Cable	Various	8/26/2011	8/26/2013
AN01467	Horn Antenna-ANSI	3115	10/19/2011	10/19/2013
	C63.5 Calibration			
	Asset # AN03227  AN03227  AN03227  AN01271  AN03123  ANP05546  AN02308  AN01993  ANP05360  ANP05366  AN00052  ANP05965	Asset #         Description           AN03227         Cable           AN03227         Cable           AN02871         Spectrum Analyzer           AN01271         Preamp           AN03123         Cable           ANP05546         Cable           AN02308         Preamp           AN01993         Biconilog Antenna           ANP05360         Cable           ANP05366         Cable           AN00052         Loop Antenna           ANP05965         Cable           AN01467         Horn Antenna-ANSI	Asset #         Description         Model           AN03227         Cable         32026-29080-29080-29080-29080-84           AN02871         Spectrum Analyzer         E4440A           AN01271         Preamp         83017A           AN03123         Cable         32026-2-29801-12           ANP05546         Cable         Heliax           AN02308         Preamp         8447D           AN01993         Biconilog Antenna         CBL6111C           ANP05360         Cable         RG214           ANP05366         Cable         RG-214           AN00052         Loop Antenna         6502           ANP05965         Cable         Various           AN01467         Horn Antenna-ANSI         3115	Asset #         Description         Model         Calibration Date           AN03227         Cable         32026-29080- 29080-84         5/2/2011           AN02871         Spectrum Analyzer         E4440A         4/22/2011           AN01271         Preamp         83017A         8/18/2011           AN03123         Cable         32026-2-29801- 12         10/14/2011           ANP05546         Cable         Heliax         9/7/2012           AN02308         Preamp         8447D         4/3/2012           AN01993         Biconilog Antenna         CBL6111C         3/2/2012           ANP05360         Cable         RG214         12/3/2012           ANP05366         Cable         RG-214         10/14/2011           AN00052         Loop Antenna         6502         5/16/2012           ANP05965         Cable         Various         8/26/2011           AN01467         Horn Antenna-ANSI         3115         10/19/2011

#### Equipment Under Test (\* = EUT):

Function	Manufacturer	Model #	S/N
Programmable Power Supply	Ametek	XG100-17MGA	1107A05456
Base 24V*	Meteorcomm LLC.	63030-24	63B2000101BK
GPS Antenna	SYNERGY SYSTEMS, LLC	SMA-35	NA

Page 7 of 30 Report No.: 94195-12



Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	DELL	Latitude E6410	Meteorcomm AN2421
Laptop Power Supply	DELL	FA90PE1-00	NA
Mouse	DELL	M-UAR DEL7	NA

### Test Conditions / Notes:

Temperature: 21°C Pressure: 103.4kPa Humidity: 33%

Frequency: 9kHz-2.5GHz

Device is a transmitter/receiver operating at 217-220MHz. The transmitter is transmitting. Transmitter is tuned for Low and High Frequency (217.6125MHz & 219.9875MHz). Transmit and Receive ports terminated in characteristic load. EUT is powered by 24VDC via support power supply.

Ethernet traffic is established on maintenance port with support equipment located outside the test area. All EUT ports are filled. Below 30MHz CISPR Bandwidths, 30MHz-1GHz, RBW=100kHz VBW=300kHz & 1-2.5GHz, RBW=1MHz VBW=3MHz

Ext Attn: 0 dB

Measu	rement Data:	Re	Reading listed by margin.			Test Distance: 3 Meters					
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7	T8					
			T9	T10	T11						
	MHz	dΒμV	dB	dB	dB	dB	Table	$dB\mu V/m$	$dB\mu V/m$	dB	Ant
1	435.230M	65.6	+0.6	+0.0	+0.0	+0.0	+0.0	58.0	82.2	-24.2	Vert
			-28.0	+17.0	+1.4	+1.4	360		Low		99
			+0.0	+0.0	+0.0						
2	27.208M	50.8	+0.1	+0.0	+0.0	+0.3	+0.0	56.4	82.2	-25.8	Paral
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+5.2	+0.0	+0.0						
3	27.081M	50.1	+0.1	+0.0	+0.0	+0.3	+0.0	55.7	82.2	-26.5	Paral
			+0.0	+0.0	+0.0	+0.0			High		99
			+5.2	+0.0	+0.0						
4	27.194M	49.9	+0.1	+0.0	+0.0	+0.3	+0.0	55.5	82.2	-26.7	Perpe
			+0.0	+0.0	+0.0	+0.0			High		99
			+5.2	+0.0	+0.0						
5	5.597M	45.5	+0.1	+0.0	+0.0	+0.1	+0.0	55.4	82.2	-26.8	Paral
			+0.0	+0.0	+0.0	+0.0			Low		99
			+9.7	+0.0	+0.0						
6	27.208M	49.6	+0.1	+0.0	+0.0	+0.3	+0.0	55.2	82.2	-27.0	Perpe
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+5.2	+0.0	+0.0						
7	5.597M	44.5	+0.1	+0.0	+0.0	+0.1	+0.0	54.4	82.2	-27.8	Perpe
			+0.0	+0.0	+0.0	+0.0	357		Low		99
			+9.7	+0.0	+0.0						
8	5.672M	43.8	+0.1	+0.0	+0.0	+0.1	+0.0	53.7	82.2	-28.5	Perpe
			+0.0	+0.0	+0.0	+0.0			High		99
			+9.7	+0.0	+0.0						
9	435.223M	60.9	+0.6	+0.0	+0.0	+0.0	+0.0	53.3	82.2	-28.9	Horiz
			-28.0	+17.0	+1.4	+1.4			Low		99
			+0.0	+0.0	+0.0						

Page 8 of 30 Report No.: 94195-12



10	439.983M	58.3	+0.6	+0.0	+0.0	+0.0	+0.0		82.2	-31.5	Vert
			-28.1	+17.1	+1.4	+1.4	360		High		168
			+0.0	+0.0	+0.0						
11	870.445M	50.3	+0.9	+0.0	+0.0	+0.0	+0.0	50.7	82.2	-31.5	Vert
			-27.5	+22.8	+2.0	+2.2	360		Low		99
			+0.0	+0.0	+0.0						
12	879.934M	50.0	+0.9	+0.0	+0.0	+0.0	+0.0	50.5	82.2	-31.7	
			-27.5	+22.9	+2.0	+2.2	360		High		99
			+0.0	+0.0	+0.0						
13	439.976M	57.9	+0.6	+0.0	+0.0	+0.0	+0.0	50.3	82.2	-31.9	Horiz
			-28.1	+17.1	+1.4	+1.4			High		99
			+0.0	+0.0	+0.0						
14	870.434M	49.5	+0.9	+0.0	+0.0	+0.0	+0.0	49.9	82.2	-32.3	Horiz
			-27.5	+22.8	+2.0	+2.2			Low		99
			+0.0	+0.0	+0.0						
15	879.933M	49.2	+0.9	+0.0	+0.0	+0.0	+0.0	49.7	82.2	-32.5	Horiz
			-27.5	+22.9	+2.0	+2.2	360		High		99
			+0.0	+0.0	+0.0						
16	659.979M	52.6	+0.8	+0.0	+0.0	+0.0	+0.0	49.0	82.2	-33.2	Horiz
			-28.3	+20.3	+1.7	+1.9			High		121
			+0.0	+0.0	+0.0						
17	652.854M	52.2	+0.8	+0.0	+0.0	+0.0	+0.0	48.5	82.2	-33.7	Horiz
			-28.3	+20.3	+1.7	+1.8	360		Low		124
			+0.0	+0.0	+0.0						
18	652.840M	51.4	+0.8	+0.0	+0.0	+0.0	+0.0	47.7	82.2	-34.5	Vert
			-28.3	+20.3	+1.7	+1.8	360		Low		139
			+0.0	+0.0	+0.0						
19	3.079M	37.4	+0.0	+0.0	+0.0	+0.1	+0.0	47.2	82.2	-35.0	Paral
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+9.7	+0.0	+0.0						
20	3.079M	37.3	+0.0	+0.0	+0.0	+0.1	+0.0	47.1	82.2	-35.1	Perpe
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+9.7	+0.0	+0.0						
21	88.250M	64.6	+0.3	+0.0	+0.0	+0.0	+0.0	46.8	82.2	-35.4	Vert
			-28.0	+8.8	+0.6	+0.5	360		Low		101
			+0.0	+0.0	+0.0						
22	3.165M	36.9	+0.0	+0.0	+0.0	+0.1	+0.0	46.7	82.2	-35.5	Perpe
1			+0.0	+0.0	+0.0				High		99
			+9.7	+0.0	+0.0				=		
23	89.150M	63.3	+0.3	+0.0	+0.0	+0.0	+0.0	45.6	82.2	-36.6	Vert
			-28.0	+8.9	+0.6	+0.5	360		High		99
			+0.0	+0.0	+0.0				J		
24	12.537M	34.8	+0.1	+0.0	+0.0	+0.2	+0.0	44.7	82.2	-37.5	Perpe
			+0.0	+0.0	+0.0	+0.0	28		Low		99
			+9.6	+0.0	+0.0						
25	12.556M	34.3	+0.1	+0.0	+0.0	+0.2	+0.0	44.2	82.2	-38.0	Paral
			+0.0	+0.0	+0.0	+0.0	360		Low		99
1			+9.6	+0.0	+0.0						
26	12.687M	33.6	+0.1	+0.0	+0.0	+0.2	+0.0	43.4	82.2	-38.8	Perpe
			+0.0	+0.0	+0.0	+0.0			High		99
			+9.5	+0.0	+0.0				<i>6</i> -		- 1
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Page 9 of 30 Report No.: 94195-12



27	12.425M	33.2	+0.1	+0.0	+0.0	+0.2	+0.0		82.2	-39.1	Paral
			+0.0	+0.0	+0.0	+0.0	359		High		99
			+9.6	+0.0	+0.0						
28	10.209M	32.9	+0.1	+0.0	+0.0	+0.2	+0.0	43.1	82.2	-39.1	Perpe
			+0.0	+0.0	+0.0	+0.0			High		99
			+9.9	+0.0	+0.0						
29	1200.000M	55.4	+1.0	-35.9	+0.3	+0.0	+0.0	42.3	82.2	-39.9	Vert
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+0.0	+1.3	+20.2						
30	1100.100M	55.8	+1.0	-36.3	+0.3	+0.0	+0.0	41.8	82.2	-40.4	Horiz
			+0.0	+0.0	+0.0	+0.0	360		High		106
			+0.0	+1.2	+19.8						
31	30.000M	52.1	+0.2	+0.0	+0.0	+0.0	+0.0	41.8	82.2	-40.4	Vert
			-28.0	+17.0	+0.3	+0.2			Low		99
			+0.0	+0.0	+0.0						
32	2224.917M	45.1	+1.5	-34.2	+0.4	+0.0	+0.0	41.1		-41.1	Horiz
			+0.0	+0.0	+0.0	+0.0			Low		99
			+0.0	+1.8	+26.5						
33	95.360M	58.0	+0.3	+0.0	+0.0	+0.0	+0.0	41.0		-41.2	Horiz
			-27.9	+9.5	+0.6	+0.5			Low		200
			+0.0	+0.0	+0.0						
34	600.005M	45.1	+0.7	+0.0	+0.0	+0.0	+0.0	40.8	82.2	-41.4	Vert
			-28.3	+20.0	+1.6	+1.7	360		High		101
			+0.0	+0.0	+0.0						
35	1088.000M	54.9	+0.9	-36.4	+0.3	+0.0	+0.0	40.6	82.2	-41.6	Horiz
			+0.0	+0.0	+0.0	+0.0	360		Low		130
			+0.0	+1.2	+19.7						
36	659.956M	44.1	+0.8	+0.0	+0.0	+0.0	+0.0	40.5	82.2	-41.7	Vert
			-28.3	+20.3	+1.7	+1.9	360		High		146
			+0.0	+0.0	+0.0						
37	1100.150M	54.5	+1.0	-36.3	+0.3	+0.0	+0.0	40.5	82.2	-41.7	Vert
			+0.0	+0.0	+0.0	+0.0			High		99
			+0.0	+1.2	+19.8						
38	599.994M	44.8	+0.7	+0.0	+0.0	+0.0	+0.0	40.5	82.2	-41.7	Vert
			-28.3	+20.0	+1.6	+1.7			Low		99
			+0.0	+0.0	+0.0						
39	31.300k	30.4	+0.0	+0.0	+0.0		+0.0		82.2	-41.9	Paral
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+9.9	+0.0	+0.0						
40	95.060M	57.3	+0.3	+0.0	+0.0	+0.0	+0.0	40.3	82.2	-41.9	Horiz
			-27.9	+9.5	+0.6	+0.5	360		High		207
			+0.0	+0.0	+0.0						
41	2224.700M	44.2	+1.5	-34.2	+0.4	+0.0	+0.0	40.2	82.2	-42.0	Horiz
			+0.0	+0.0	+0.0	+0.0			High		99
			+0.0	+1.8	+26.5						
42	31.270k	30.1	+0.0	+0.0	+0.0	+0.0	+0.0	40.0	82.2	-42.2	Paral
			+0.0	+0.0	+0.0	+0.0	132		Low		99
			+9.9	+0.0	+0.0						
43	600.004M	44.1	+0.7	+0.0	+0.0	+0.0	+0.0	39.8	82.2	-42.4	Horiz
			-28.3	+20.0	+1.6	+1.7	360		High		115
			+0.0	+0.0	+0.0				-		

Page 10 of 30 Report No.: 94195-12



44   19.822M												
45   31.272k   29.9   +0.0	44	19.822M	31.7	+0.1	+0.0	+0.0	+0.2	+0.0	39.8		-42.4	Paral
45   31.272k   29.9   +0.0				+0.0	+0.0	+0.0	+0.0	49		Low		99
100				+7.8	+0.0	+0.0						
19.9   10.0	45	31.272k	29.9	+0.0	+0.0	+0.0	+0.0	+0.0	39.8	82.2	-42.4	Perpe
46   21.049M   32.2   +0.1   +0.0   +0.0   +0.0   +0.2   +0.0   360   82.2   Low   -42.4   Perperex   47   162.390M   54.6   +0.4   +0.0   +				+0.0	+0.0	+0.0	+0.0			Low		99
162.390M				+9.9	+0.0	+0.0						
162.390M	46	21.049M	32.2	+0.1	+0.0	+0.0	+0.2	+0.0	39.8	82.2	-42.4	Perpe
47   162.390M				+0.0	+0.0	+0.0	+0.0	360		Low		
47   162.390M				+7.3	+0.0	+0.0						
134   1200.025M	47	162.390M	54.6				+0.0	+0.0	39.8	82.2	-42.4	Vert
10												
48   1200.025M   52.7   +1.0   -35.9   +0.3   +0.0   +0.0   +0.0   113   Low   114   Low   Low										υ		
Hole	48	1200.025M	52.7				+0.0	+0.0	39.6	82.2	-42.6	Horiz
100												
49   800.024M   40.2   +0.8   +0.0   +0.0   +0.0   +0.0   +0.0   High   99												
100   100	49	800.024M	40.2				+0.0	+0.0	39.5	82.2	-42.7	Horiz
+0.0	.,	000.02						. 0.0	0,10		,	
S0   31.272k   29.4   +0.0   +0.0   +0.0   +0.0   +0.0   +0.0   39.3   82.2   -42.9   Perperent   +9.9   +0.0   +0.0   +0.0   +0.0   308   High   99										8		
100   100	50	31 272k	29.4				+0.0	+0.0	39 3	82.2	-42.9	Perne
100   100	50	31.272K	27.1						37.3		12.7	
51         165.930M         54.5         +0.4         +0.0         +0.0         +0.0         +0.0         39.3         82.2         -42.9         Vert 101           52         10.225M         29.0         +0.1         +0.0         +0.0         +0.0         39.2         82.2         -43.0         Paral High           53         1999.850M         43.4         +1.4         -34.3         +0.4         +0.0         +0.0         39.1         82.2         -43.1         Horiz Horiz Horiz High           54         800.003M         39.7         +0.8         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         99           54         800.003M         39.7         +0.8         +0.0							. 0.0	200		111811		
101   102   102   103   104   105	51	165 930M	54.5				+0.0	+0.0	39.3	82.2	-42 9	Vert
10.225M   29.0   +0.1   +0.0   +0.0   +0.0   +0.0   39.2   82.2   -43.0   Paral   +0.0   +0.0   +0.0   +0.0   360   High   99   +0.0   +0.0   +0.0   360   High   99   +0.0   +0.0   +0.0   360   High   99   +0.0   +0.0   +0.0   360   Low   99   +0.0   +1.7   +26.5   +0.0   +0.0   +0.0   +0.0   360   Low   99   +0.0   +1.7   +26.5   +0.0   +0.0   +0.0   +0.0   +0.0   39.0   82.2   -43.2   Horiz   +0.0   +0.0   +0.0   +0.0   +0.0   +0.0   39.0   82.2   -43.2   Horiz   +0.0	31	103.73011	54.5					10.0	37.3		72.7	
52         10.225M         29.0         +0.1         +0.0         +0.0         +0.0         360         39.2         82.2         -43.0         Paral           53         1999.850M         43.4         +1.4         -34.3         +0.4         +0.0         +0.0         39.1         82.2         -43.1         Horiz           54         800.003M         39.7         +0.8         +0.0         +0.0         +0.0         +0.0         39.0         82.2         -43.2         Horiz           55         1999.867M         42.9         +1.4         -34.3         +0.4         +0.0         +0.0         39.0         82.2         -43.6         Vert           56         1200.100M         51.7         +1.0         -35.9         +0.3         +0.0         +0.0         +0.0         +0.0         High         99           57         1200.050M         51.7         +1.0         -35.9         +0.3         +0.0         +0.0         High         99           58         249.990M         50.6         +0.5         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         High         43.6         Vert           +0.0         +0.0         <							10.0			2011		101
+0.0	52	10.225M	29.0				±0.2	±0.0	30.2	82.2	-43.0	Paral
+9.9	32	10.223111	27.0								- <del>1</del> 3.0	
53       1999.850M       43.4       +1.4       -34.3       +0.4       +0.0       +0.0       39.1       82.2       -43.1       Horiz Horiz Horiz How         54       800.003M       39.7       +0.8       +0.0       +0.0       +0.0       +0.0       39.0       82.2       -43.2       Horiz High         55       1999.867M       42.9       +1.4       -34.3       +0.4       +0.0       +0.0       38.6       82.2       -43.6       Vert High         56       1200.100M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       38.6       82.2       -43.6       Horiz High         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       38.6       82.2       -43.6       Horiz High         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       38.6       82.2       -43.6       Vert High         58       249.990M       50.6       +0.5       +0.0       +0.0       +0.0       +0.0       +0.0       High       99         59       61.360M       58.7       +0.2       +0.0							10.0	300		mgm		,,,
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	53	1999 850M	13.1				±0.0	±0.0	30 1	82.2	-//3 1	Horiz
54         800.003M         39.7         +0.8         +0.0         +0.0         +0.0         +0.0         39.0         82.2         -43.2         Horiz Horiz Horiz Horiz           55         1999.867M         42.9         +1.4         -34.3         +0.4         +0.0         +0.0         38.6         82.2         -43.6         Vert High           56         1200.100M         51.7         +1.0         -35.9         +0.3         +0.0         +0.0         +0.0         High         99           57         1200.050M         51.7         +1.0         -35.9         +0.3         +0.0         +0.0         High         106           58         249.990M         50.6         +0.5         +0.0         +0.0         +0.0         +0.0         +0.0         High         99           59         61.360M         58.7         +0.2         +0.0         +0.0         +0.0         +0.0         +0.0         High         99           59         60         5.691M         28.5         +0.1         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         High         99	33	1777.03011	7.7						37.1		- <del>1</del> 3.1	
54       800.003M       39.7       +0.8       +0.0       +0.0       +0.0       +0.0       39.0       82.2       -43.2       Horiz 100         55       1999.867M       42.9       +1.4       -34.3       +0.4       +0.0       +0.0       +0.0       +0.0       High       99         56       1200.100M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       +0.0       High       106         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       +0.0       High       106         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       +0.0       High       106         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       38.6       82.2       -43.6       Horiz High         58       249.990M       50.6       +0.5       +0.0       +0.0       +0.0       +0.0       +0.0       High       99         59       61.360M       58.7       +0.2       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       High       99							10.0	300		Low		,,
100	5/1	800 003M	30.7				±0.0	±0.0	30.0	82.2	13.2	Horiz
+0.0         +0.0         +0.0           55         1999.867M         42.9         +1.4         -34.3         +0.4         +0.0         +0.0         38.6         82.2         -43.6         Vert           +0.0         +0.0         +0.0         +0.0         +0.0         High         99           56         1200.100M         51.7         +1.0         -35.9         +0.3         +0.0         +0.0         38.6         82.2         -43.6         Horiz           +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         High         106           57         1200.050M         51.7         +1.0         -35.9         +0.3         +0.0         +0.0         38.6         82.2         -43.6         Vert           +0.0         +0.0         +0.0         +0.0         +0.0         +0.0         High         99           58         249.990M         50.6         +0.5         +0.0         +0.0         +0.0         +0.0         38.5         82.2         -43.7         Horiz           -27.1         +12.5         +1.0         +1.0         Low         99           +0.0         +0.0         +0.0         +0.0	34	000.003WI	39.1						39.0		-43.2	
55       1999.867M       42.9       +1.4       -34.3       +0.4       +0.0       +0.0       +0.0       High       99         56       1200.100M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       +0.0       High       99         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       High       106         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       High       99         58       249.990M       50.6       +0.5       +0.0       +0.0       +0.0       +0.0       +0.0       High       99         59       61.360M       58.7       +0.2       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       99         60       5.691M       28.5       +0.1       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       High       99							12.1	300		Low		100
+0.0       +0.0       +0.0       +0.0       High       99         56       1200.100M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       38.6       82.2       -43.6       Horiz High         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       High       106         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       38.6       82.2       -43.6       Vert         +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       High       99         58       249.990M       50.6       +0.5       +0.0       +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Horiz         -27.1       +12.5       +1.0       +1.0       +1.0       Low       99         59       61.360M       58.7       +0.2       +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Vert         -28.0       +6.7       +0.5       +0.4       1       High       99         60       5.691M       28.5       +0.1       +0.0 <td>55</td> <td>1000 867M</td> <td>42.0</td> <td></td> <td></td> <td></td> <td>+Ω.Ω</td> <td>+Ω.Ω</td> <td>38.6</td> <td>82.2</td> <td>13.6</td> <td>Vort</td>	55	1000 867M	42.0				+Ω.Ω	+Ω.Ω	38.6	82.2	13.6	Vort
+0.0       +1.7       +26.5         56       1200.100M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       +0.0       High       106         40.0       +0.0       +0.0       +0.0       +0.0       +0.0       High       106         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       38.6       82.2       -43.6       Vert         +0.0       +0.0       +0.0       +0.0       +0.0       High       99         58       249.990M       50.6       +0.5       +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Horiz         -27.1       +12.5       +1.0       +1.0       1.0	33	1999.007W1	42.7					+0.0	36.0		-43.0	
56       1200.100M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       38.6       82.2       -43.6       Horiz High         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       38.6       82.2       -43.6       Vert         +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       High       99         58       249.990M       50.6       +0.5       +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Horiz High         59       61.360M       58.7       +0.2       +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Vert High         -28.0       +6.7       +0.5       +0.4       1       High       99         60       5.691M       28.5       +0.1       +0.0       +0.0       +0.1       +0.0       38.4       82.2       -43.7       Vert         +0.0       +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Vert         +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Vert							+0.0			High		22
57       1200.050M       51.7       +1.0       -35.9       +0.0       +0.0       +0.0       +0.0       38.6       82.2       -43.6       Vert         +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       High       106         58       249.990M       50.6       +0.5       +0.0       +0.0       +0.0       +0.0       +0.0       82.2       -43.7       Horiz         -27.1       +12.5       +1.0       +1.0       +0.0       10.0 <td>56</td> <td>1200 100M</td> <td>517</td> <td></td> <td></td> <td></td> <td>-1 O O</td> <td>_ΛΛΛ</td> <td>28 6</td> <td>82.2</td> <td>12 6</td> <td>Horiz</td>	56	1200 100M	517				-1 O O	_ΛΛΛ	28 6	82.2	12 6	Horiz
+0.0       +1.3       +20.2         57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       +0.0       38.6       82.2       -43.6       Vert         +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       High       99         58       249.990M       50.6       +0.5       +0.0       +0.0       +0.0       +0.0       82.2       -43.7       Horiz         -27.1       +12.5       +1.0       +1.0       +0.0       1.0       1.0       1.0       1.0       1.0       99         59       61.360M       58.7       +0.2       +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Vert         -28.0       +6.7       +0.5       +0.4       1       High       99         60       5.691M       28.5       +0.1       +0.0       +0.0       +0.1       +0.0       38.4       82.2       -43.8       Paral         +0.0       +0.0       +0.0       +0.0       56.0       1       1       1       1       1       1       1       1       1       1       1       1       1 <td< td=""><td>50</td><td>1200.100W</td><td>51.7</td><td></td><td></td><td></td><td></td><td></td><td>50.0</td><td>٥٧.٧ High</td><td>-43.0</td><td></td></td<>	50	1200.100W	51.7						50.0	٥٧.٧ High	-43.0	
57       1200.050M       51.7       +1.0       -35.9       +0.3       +0.0       +0.0       +0.0       38.6       82.2       -43.6       Vert High         +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       High       99         58       249.990M       50.6       +0.5       +0.0       +0.0       +0.0       +0.0       +0.0       82.2       -43.7       Horiz Low         -27.1       +12.5       +1.0       +1.0       +1.0       Low       99         59       61.360M       58.7       +0.2       +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Vert         -28.0       +6.7       +0.5       +0.4       1       High       99         60       5.691M       28.5       +0.1       +0.0       +0.0       +0.1       +0.0       38.4       82.2       -43.8       Paral         +0.0       +0.0       +0.0       +0.0       560       High       99							+0.0			High		100
58       249.990M       50.6       +0.5       +0.0       +0.0       +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Horiz         59       61.360M       58.7       +0.2       +0.0       +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Horiz         -27.1       +12.5       +1.0       +1.0       Low       99         59       61.360M       58.7       +0.2       +0.0       +0.0       +0.0       +0.0       38.5       82.2       -43.7       Vert         -28.0       +6.7       +0.5       +0.4       1       High       99         60       5.691M       28.5       +0.1       +0.0       +0.0       +0.1       +0.0       38.4       82.2       -43.8       Paral         +0.0       +0.0       +0.0       +0.0       560       High       99	57	1200 050M	517				10.0	100	20 6	92.2	12.6	Vort
+0.0 +1.3 +20.2  58 249.990M 50.6 +0.5 +0.0 +0.0 +0.0 +0.0 38.5 82.2 -43.7 Horiz -27.1 +12.5 +1.0 +1.0 Low 99 +0.0 +0.0 +0.0 +0.0  59 61.360M 58.7 +0.2 +0.0 +0.0 +0.0 +0.0 38.5 82.2 -43.7 Vert -28.0 +6.7 +0.5 +0.4 1 High 99 +0.0 +0.0 +0.0 +0.0  60 5.691M 28.5 +0.1 +0.0 +0.0 +0.0 +0.1 +0.0 38.4 82.2 -43.8 Paral +0.0 +0.0 +0.0 +0.0 360 High 99	31	1 200.030W	31./					+0.0	38.0		-43.0	
58       249.990M       50.6       +0.5       +0.0       +0.0       +0.0       +0.0       +0.0       28.5       43.7       Horiz							+0.0			uigii		99
-27.1 +12.5 +1.0 +1.0 Low 99 +0.0 +0.0 +0.0  59 61.360M 58.7 +0.2 +0.0 +0.0 +0.0 +0.0 38.5 82.2 -43.7 Vert -28.0 +6.7 +0.5 +0.4 1 High 99  60 5.691M 28.5 +0.1 +0.0 +0.0 +0.0 +0.1 +0.0 38.4 82.2 -43.8 Paral +0.0 +0.0 +0.0 +0.0 360 High 99	50	240.00014	50.6				ΙΟ Ο	+0.0	20 5	92.2	127	Uoria
+0.0 +0.0 +0.0 +0.0  59 61.360M 58.7 +0.2 +0.0 +0.0 +0.0 +0.0 38.5 82.2 -43.7 Vert -28.0 +6.7 +0.5 +0.4 1 High 99 +0.0 +0.0 +0.0 +0.0  60 5.691M 28.5 +0.1 +0.0 +0.0 +0.1 +0.0 38.4 82.2 -43.8 Paral +0.0 +0.0 +0.0 +0.0 360 High 99	38	447.99UM	30.0					+0.0	36.3		-43./	
59 61.360M 58.7 +0.2 +0.0 +0.0 +0.0 +0.0 38.5 82.2 -43.7 Vert -28.0 +6.7 +0.5 +0.4 1 High 99 +0.0 +0.0 +0.0 +0.0  60 5.691M 28.5 +0.1 +0.0 +0.0 +0.1 +0.0 38.4 82.2 -43.8 Paral +0.0 +0.0 +0.0 +0.0 360 High 99							+1.0			LUW		フフ
-28.0 +6.7 +0.5 +0.4 1 High 99 +0.0 +0.0 +0.0 +0.0 60 5.691M 28.5 +0.1 +0.0 +0.0 +0.1 +0.0 38.4 82.2 -43.8 Paral +0.0 +0.0 +0.0 +0.0 360 High 99	50	61 260M	507				ΙΟ Ο	+0.0	20 5	92.2	127	Vont
+0.0 +0.0 +0.0 +0.0 60 5.691M 28.5 +0.1 +0.0 +0.0 +0.1 +0.0 38.4 82.2 -43.8 Paral +0.0 +0.0 +0.0 +0.0 360 High 99	39	01.30UM	38.7						38.3		-45./	
60 5.691M 28.5 +0.1 +0.0 +0.0 +0.1 +0.0 38.4 82.2 -43.8 Paral +0.0 +0.0 +0.0 +0.0 360 High 99							+0.4	1		nign		99
+0.0 +0.0 +0.0 +0.0 360 High 99	<b>CO</b>	E (013 f	20.7				. 0. 1	.00	20.4	00.0	42.0	D 1
<b>o</b>	60	5.691M	28.5						38.4		-43.8	
+9./ +0.0 +0.0							+0.0	360		High		99
				+9./	+0.0	+0.0						



61	600.012M	42.6	+0.7	+0.0	+0.0	+0.0	+0.0	38.3	82.2	-43.9	Horiz
01	000.012101	42.0	-28.3	+20.0	+0.0	+0.0	+0.0	36.3	Low	-43.7	99
			+0.0	+0.0	+0.0	⊤1./			LOW		22
62	499.982M	44.0	+0.7	+0.0	+0.0	+0.0	+0.0	37.7	82.2	-44.5	Horiz
02	499.9021VI	44.0	-28.2	+18.2	+0.0	+0.0	+0.0	31.1	62.2 High	-44.3	163
			+0.0	+0.0	+0.0	⊤1.0			mgn		103
63	62.460M	57.6	+0.2	+0.0	+0.0	+0.0	+0.0	37.4	82.2	-44.8	Vert
03	02.400W	37.0	-28.0	+6.7	+0.5	+0.4	+0.0	37.4	Low	-44.0	101
			+0.0	+0.7	+0.0	⊤0. <del>4</del>			LOW		101
6/1	249.987M	49.5	+0.5	+0.0	+0.0	+0.0	+0.0	37.4	82.2	-44.8	Horiz
04	247.707WI	77.5	-27.1	+12.5	+1.0	+1.0	360	37.4	High	0	99
			+0.0	+0.0	+0.0	11.0	300		IIIgii		))
65	799.988M	38.1	+0.8	+0.0	+0.0	+0.0	+0.0	37.4	82.2	-44.8	Vert
0.5	799.900IVI	30.1	-27.9	+22.4	+0.0	+0.0	+0.0	37.4	Low	-44.0	99
			+0.0	+0.0	+0.0	12.1			LOW		))
66	1999.800M	41.4	+1.4	-34.3	+0.4	+0.0	+0.0	27 1	82.2	-45.1	Horiz
00	1999.000W	71.7	+0.0	+0.0	+0.4	+0.0	360	37.1	High	<del>-4</del> J.1	99
			+0.0	+1.7	+26.5	10.0	300		mgn		"
67	500.000M	43.3	+0.7	+0.0	+0.0	+0.0	+0.0	37.0	82.2	-45.2	Horiz
07	300.000WI	45.5	-28.2	+18.2	+1.4	+1.6	360	37.0	Low	-43.2	164
			+0.0	+0.0	+0.0	11.0	300		Low		104
68	1399.967M	48.5	+1.1	-35.3	+0.3	+0.0	+0.0	37.0	82.2	-45.2	Vert
00	1377.70711	70.5	+0.0	+0.0	+0.0	+0.0	360	37.0	High	-43.2	99
			+0.0	+1.4	+21.0	10.0	300		111511		
69	1400.000M	48.4	+1.1	-35.3	+0.3	+0.0	+0.0	36.9	82.2	-45.3	Vert
0)	1400.000141	40.4	+0.0	+0.0	+0.0	+0.0	10.0	30.7	Low	73.3	99
			+0.0	+1.4	+21.0	10.0			Low		
70	1374.767M	48.4	+1.1	-35.3	+0.3	+0.0	+0.0	36.8	82.2	-45.4	Vert
70	137 1.707141	10.1	+0.0	+0.0	+0.0	+0.0	10.0	30.0	High	13.1	99
			+0.0	+1.4	+20.9	. 0.0			111811		
71	800.000M	37.4	+0.8	+0.0	+0.0	+0.0	+0.0	36.7	82.2	-45.5	Vert
			-27.9	+22.4	+1.9	+2.1			High		99
			+0.0	+0.0	+0.0				υ		
72	1824.183M	43.1	+1.3	-34.6	+0.3	+0.0	+0.0	36.6	82.2	-45.6	Vert
			+0.0	+0.0	+0.0	+0.0			Low		99
			+0.0	+1.6	+24.9						
73	1400.167M	48.1	+1.1	-35.3	+0.3	+0.0	+0.0	36.6	82.2	-45.6	Horiz
			+0.0		+0.0		360				99
			+0.0	+1.4	+21.0				-		
74	1824.183M	43.1	+1.3	-34.6	+0.3	+0.0	+0.0	36.6	82.2	-45.6	Vert
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+0.0	+1.6	+24.9				-		
75	607.984M	40.7	+0.7	+0.0	+0.0	+0.0	+0.0	36.5	82.2	-45.7	Horiz
			-28.3	+20.0	+1.6	+1.8	360		High		115
			+0.0	+0.0	+0.0				=		
76	1375.000M	48.0	+1.1	-35.3	+0.3	+0.0	+0.0	36.4	82.2	-45.8	Vert
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+0.0	+1.4	+20.9						
77	608.004M	40.5	+0.7	+0.0	+0.0	+0.0	+0.0	36.3	82.2	-45.9	Vert
			-28.3	+20.0	+1.6	+1.8			High		100
			+0.0	+0.0	+0.0				-		



78	1400.050M	47.7		-35.3	+0.3	+0.0	+0.0	36.2	82.2	-46.0	Horiz
			+0.0	+0.0	+0.0	+0.0			Low		120
			+0.0	+1.4	+21.0			27.0			
79	699.518M	39.1	+0.8	+0.0	+0.0	+0.0	+0.0		82.2	-46.4	Vert
			-28.2	+20.5	+1.7	+1.9	360		High		99
			+0.0	+0.0	+0.0						
80	1424.750M	47.1	+1.1	-35.2	+0.3	+0.0	+0.0		82.2	-46.4	Vert
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+0.0	+1.4	+21.1						
81	1174.867M	49.0	+1.0	-36.0	+0.3	+0.0	+0.0	35.7	82.2	-46.5	Vert
			+0.0	+0.0	+0.0	+0.0	5		Low		107
			+0.0	+1.3	+20.1						
82	1175.317M	49.0	+1.0	-36.0	+0.3	+0.0	+0.0	35.7	82.2	-46.5	Horiz
			+0.0	+0.0	+0.0	+0.0			High		106
			+0.0	+1.3	+20.1						
83	1225.075M	48.5	+1.0	-35.8	+0.3	+0.0	+0.0	35.7	82.2	-46.5	Horiz
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+0.0	+1.3	+20.4						
84	1174.967M	49.0	+1.0	-36.0	+0.3	+0.0	+0.0	35.7	82.2	-46.5	Vert
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+0.0	+1.3	+20.1						
85	608.017M	39.9	+0.7	+0.0	+0.0	+0.0	+0.0	35.7	82.2	-46.5	Horiz
			-28.3	+20.0	+1.6	+1.8			Low		99
			+0.0	+0.0	+0.0						
86	1823.920M	42.0	+1.3	-34.6	+0.3	+0.0	+0.0	35.5	82.2	-46.7	Horiz
			+0.0	+0.0	+0.0	+0.0			Low		99
			+0.0	+1.6	+24.9						
87	1174.920M	48.8	+1.0	-36.0	+0.3	+0.0	+0.0	35.5	82.2	-46.7	Horiz
			+0.0	+0.0	+0.0	+0.0	360		Low		112
			+0.0	+1.3	+20.1						
88	608.010M	39.3	+0.7	+0.0	+0.0	+0.0	+0.0	35.1	82.2	-47.1	Vert
			-28.3	+20.0	+1.6	+1.8			Low		99
			+0.0	+0.0	+0.0						
89	1094.517M	48.9	+0.9	-36.3	+0.3	+0.0	+0.0	34.8	82.2	-47.4	Vert
			+0.0	+0.0	+0.0	+0.0	360		Low	.,,,	99
			+0.0	+1.2	+19.8						
90	750.004M	36.6	+0.8	+0.0	+0.0	+0.0	+0.0	34.8	82.2	-47.4	Vert
		20.0		+21.5		+2.0			Low		128
			+0.0	+0.0	+0.0						
91	165.930M	49.9	+0.4	+0.0	+0.0	+0.0	+0.0	34.7	82.2	-47.5	Horiz
	100.,001,1	.,,,	-27.5	+10.3	+0.8	+0.8	2	2 117	High	17.5	164
			+0.0	+0.0	+0.0	. 0.0	_				-01
92	750.032M	36.4	+0.8	+0.0	+0.0	+0.0	+0.0	34.6	82.2	-47.6	Vert
12	750.052111	50.1	-28.0	+21.5	+1.9	+2.0	360	5 1.0	High	17.0	132
			+0.0	+0.0	+0.0	. 2.0	230				132
93	165.920M	49.7	+0.4	+0.0	+0.0	+0.0	+0.0	34.5	82.2	-47.7	Horiz
/3	105.72011	<b>47.</b> 1	-27.5	+10.3	+0.8	+0.8	360	57.5	Low	<b>-</b> 7/./	138
			+0.0	+0.0	+0.0	10.0	500		2011		150
Q/I	1425.000M	45.7	+1.1	-35.2	+0.3	+0.0	+0.0	34.4	82.2	-47.8	Vert
<i>7</i> 4	1443.000WI	+3.1	+0.0	+0.0	+0.3	+0.0 +0.0	+0.0	54.4	Low	<del>-+</del> /.0	99
			+0.0	+0.0	+21.1	+0.0			LUW		フフ
			+0.0	+1.4	+∠1.1						

Page 13 of 30 Report No.: 94195-12



95	1000.100M	49.4	+0.9	-36.8	+0.2	+0.0	+0.0		82.2	-48.0	Vert
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+0.0	+1.2	+19.3						
96	699.630M	37.5	+0.8	+0.0	+0.0	+0.0	+0.0	34.2	82.2	-48.0	Vert
			-28.2	+20.5	+1.7	+1.9			Low		99
			+0.0	+0.0	+0.0						
97	1599.800M	43.2	+1.2	-34.9	+0.3	+0.0	+0.0	33.8	82.2	-48.4	Horiz
			+0.0	+0.0	+0.0	+0.0			High		99
			+0.0	+1.5	+22.5						
98	1000.100M	48.3	+0.9	-36.8	+0.2	+0.0	+0.0	33.1	82.2	-49.1	Horiz
			+0.0	+0.0	+0.0	+0.0			High		99
			+0.0	+1.2	+19.3						
99	900.018M	32.1	+0.9	+0.0	+0.0	+0.0	+0.0	32.9	82.2	-49.3	Horiz
			-27.4	+23.0	+2.0	+2.3	360		Low		125
			+0.0	+0.0	+0.0						
100	274.997M	43.8	+0.5	+0.0	+0.0	+0.0	+0.0	32.4	82.2	-49.8	Horiz
			-27.1	+13.0	+1.1	+1.1	360		Low		99
			+0.0	+0.0	+0.0						
101	900.002M	31.6	+0.9	+0.0	+0.0	+0.0	+0.0	32.4	82.2	-49.8	Horiz
			-27.4	+23.0	+2.0	+2.3	360		High		135
			+0.0	+0.0	+0.0						
102	350.007M	41.7	+0.6	+0.0	+0.0	+0.0	+0.0	32.3	82.2	-49.9	Horiz
			-27.4	+15.0	+1.2	+1.2	360		Low		99
			+0.0	+0.0	+0.0						
103	1100.035M	46.0	+1.0	-36.3	+0.3	+0.0	+0.0	32.0	82.2	-50.2	Horiz
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+0.0	+1.2	+19.8						
104	275.011M	43.2	+0.5	+0.0	+0.0	+0.0	+0.0	31.8	82.2	-50.4	Horiz
			-27.1	+13.0	+1.1	+1.1			High		99
			+0.0	+0.0	+0.0				Ü		
105	349.972M	41.0	+0.6	+0.0	+0.0	+0.0	+0.0	31.6	82.2	-50.6	Horiz
			-27.4	+15.0	+1.2	+1.2			High		99
			+0.0	+0.0	+0.0				•		
106	1147.815M	45.1	+1.0	-36.1	+0.3	+0.0	+0.0	31.6	82.2	-50.6	Horiz
			+0.0	+0.0	+0.0	+0.0			Low		129
			+0.0	+1.3	+20.0						
107	1000.035M	46.7	+0.9	-36.8	+0.2	+0.0	+0.0	31.5	82.2	-50.7	Horiz
			+0.0	+0.0	+0.0	+0.0			Low		130
			+0.0	+1.2	+19.3						
108	227.560M	45.1	+0.4	+0.0	+0.0	+0.0	+0.0	31.2	82.2	-51.0	Vert
			-27.2	+11.0	+0.9	+1.0			Low		101
			+0.0	+0.0	+0.0						
109	900.016M	30.2	+0.9	+0.0	+0.0	+0.0	+0.0	31.0	82.2	-51.2	Vert
			-27.4	+23.0	+2.0	+2.3	83		High		99
			+0.0	+0.0	+0.0				-		
110	300.011M	41.2	+0.5	+0.0	+0.0	+0.0	+0.0	30.3	82.2	-51.9	Horiz
			-27.1	+13.5	+1.1	+1.1			Low		99
			+0.0	+0.0	+0.0						
111	399.991M	38.5	+0.6	+0.0	+0.0	+0.0	+0.0	30.3	82.2	-51.9	Horiz
			-27.8	+16.3	+1.3	+1.4	360		High		99
			+0.0	+0.0	+0.0		-		C		-

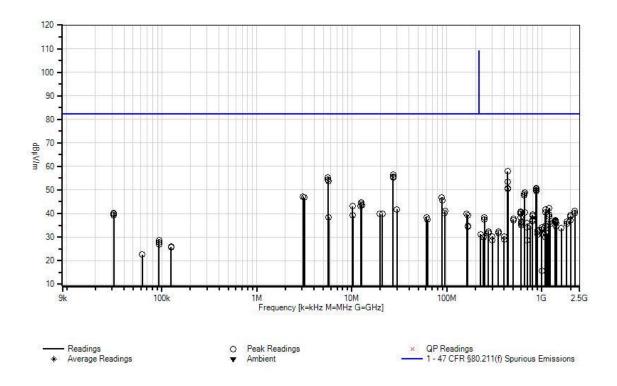
Page 14 of 30 Report No.: 94195-12



112	242.650M	42.6	+0.5	+0.0	+0.0	+0.0	+0.0	30.0		-52.2	Vert
			-27.1	+12.0	+1.0	+1.0			High		99
			+0.0	+0.0	+0.0						
113	1087.917M	44.2	+0.9	-36.4	+0.3	+0.0	+0.0	29.9	82.2	-52.3	Vert
			+0.0	+0.0	+0.0	+0.0			Low		99
			+0.0	+1.2	+19.7						
114	400.007M	37.2	+0.6	+0.0	+0.0	+0.0	+0.0	29.0	82.2	-53.2	Horiz
			-27.8	+16.3	+1.3	+1.4	360		Low		100
			+0.0	+0.0	+0.0						
115	699.991M	32.1	+0.8	+0.0	+0.0	+0.0	+0.0	28.8	82.2	-53.4	Horiz
			-28.2	+20.5	+1.7	+1.9			Low		103
			+0.0	+0.0	+0.0						
116	93.710k	19.1	+0.0	+0.0	+0.0	+0.0	+0.0	28.7	82.2	-53.5	Paral
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+9.6	+0.0	+0.0						
117	299.987M	39.6	+0.5	+0.0	+0.0	+0.0	+0.0	28.7	82.2	-53.5	Horiz
			-27.1	+13.5	+1.1	+1.1	360		High		99
			+0.0	+0.0	+0.0						
118	93.760k	19.0	+0.0	+0.0	+0.0	+0.0	+0.0	28.6		-53.6	Paral
			+0.0	+0.0	+0.0	+0.0			Low		99
			+9.6	+0.0	+0.0						
119	93.762k	18.1	+0.0	+0.0	+0.0	+0.0	+0.0	27.7	82.2	-54.5	Perpe
			+0.0	+0.0	+0.0	+0.0			Low		99
			+9.6	+0.0	+0.0						
120	93.621k	17.3	+0.0	+0.0	+0.0	+0.0	+0.0	26.9	82.2	-55.3	Perpe
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+9.6	+0.0	+0.0						
121	125.070k	16.4	+0.0	+0.0	+0.0	+0.0	+0.0	25.9	82.2	-56.3	Paral
			+0.0	+0.0	+0.0	+0.0			Low		99
			+9.5	+0.0	+0.0						
122	124.931k	16.0	+0.0	+0.0	+0.0	+0.0	+0.0	25.5	82.2	-56.7	Perpe
			+0.0	+0.0	+0.0	+0.0			Low		99
			+9.5	+0.0	+0.0						
123	62.530k	13.0	+0.0	+0.0	+0.0	+0.0	+0.0	22.6	82.2	-59.6	Paral
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+9.6	+0.0	+0.0						
124	999.917M	50.3	+0.9	-36.8	+0.0	+0.0	+0.0	15.6	82.2	-66.6	Vert
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+0.0	+1.2	+0.0						
-											



CKC Laboratories, Inc. Date: 3/13/2013 Time: 08:57:14 Meteorcomm LLC. WO#: 94195 Test Distance: 3 Meters Sequence#: 8 Horiz Meteorcomm LLC. Base 24V P/N: 63030-24





## Test Setup Photos





# **FCC PART 901**

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) 47 CFR Part 90I requirements for radio communications systems licensed and used in the Public Safety, Industrial/Business Radio Pool, and Radiolocation Radio Services.

## **Part 90I Radiated Spurious Emissions**

### **Test Data Sheets**

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: Meteorcomm LLC.

Specification: 47 CFR §90.210(b) Spurious Emissions Base 24

 Work Order #:
 94195
 Date: 3/13/2013

 Test Type:
 Maximized Emissions
 Time: 08:57:14

Equipment: Base 24V Sequence#: 8

Manufacturer: Meteorcomm LLC. Tested By: Steven Pittsford

Model: 63030-24 S/N: 63B2000101BK

Test Equipment:

Test Equit					
ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03227	Cable	32026-29080-	5/2/2011	5/2/2013
			29080-84		
	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T2	AN01271	Preamp	83017A	8/18/2011	8/18/2013
Т3	AN03123	Cable	32026-2-29801-	10/14/2011	10/14/2013
			12		
T4	ANP05546	Cable	Heliax	9/7/2012	9/7/2014
T5	AN02308	Preamp	8447D	4/3/2012	4/3/2014
T6	AN01993	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014
T7	ANP05360	Cable	RG214	12/3/2012	12/3/2014
T8	ANP05366	Cable	RG-214	10/14/2011	10/14/2013
Т9	AN00052	Loop Antenna	6502	5/16/2012	5/16/2014
T10	ANP05965	Cable	Various	8/26/2011	8/26/2013
T11	AN01467	Horn Antenna-ANSI	3115	10/19/2011	10/19/2013
		C63.5 Calibration			

### **Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Programmable Power Supply	Ametek	XG100-17MGA	1107A05456
Base 24V*	Meteorcomm LLC.	63030-24	63B2000101BK
GPS Antenna	SYNERGY SYSTEMS, LLC	SMA-35	NA

Page 18 of 30 Report No.: 94195-12



Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	DELL	Latitude E6410	Meteorcomm AN2421
Laptop Power Supply	DELL	FA90PE1-00	NA
Mouse	DELL	M-UAR DEL7	NA

### Test Conditions / Notes:

Temperature: 21°C Pressure: 103.4kPa Humidity: 33%

Frequency: 9kHz-2.5GHz

Device is a transmitter/receiver operating at 217-220MHz. The transmitter is transmitting. Transmitter is tuned for Low and High Frequency (217.6125MHz & 219.9875MHz). Transmit and Receive ports terminated in characteristic load. EUT is powered by 24VDC via support power supply.

Ethernet traffic is established on maintenance port with support equipment located outside the test area. All EUT ports are filled. Below 30MHz CISPR Bandwidths, 30MHz-1GHz, RBW=100kHz VBW=300kHz & 1-2.5GHz, RBW=1MHz VBW=3MHz

Ext Attn: 0 dB

Measu	rement Data:		eading lis	ted by ma	argin.							
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar	
			T5	T6	T7	T8						
			T9	T10	T11							
	MHz	dΒμV	dB	dB	dB	dB	Table		$dB\mu V/m$	dB	Ant	
1	435.230M	65.6	+0.6	+0.0	+0.0	+0.0	+0.0	58.0	82.2	-24.2	Vert	
			-28.0	+17.0	+1.4	+1.4	360		Low		99	
			+0.0	+0.0	+0.0							
2	27.208M	50.8	+0.1	+0.0	+0.0	+0.3	+0.0	56.4	82.2	-25.8	Paral	
			+0.0	+0.0	+0.0	+0.0	360		Low		99	
			+5.2	+0.0	+0.0							
3	27.081M	50.1	+0.1	+0.0	+0.0	+0.3	+0.0	55.7	82.2	-26.5	Paral	
			+0.0	+0.0	+0.0	+0.0			High		99	
			+5.2	+0.0	+0.0							
4	27.194M	49.9	+0.1	+0.0	+0.0	+0.3	+0.0	55.5	82.2	-26.7	Perpe	
			+0.0	+0.0	+0.0	+0.0			High		99	
			+5.2	+0.0	+0.0							
5	5.597M	45.5	+0.1	+0.0	+0.0	+0.1	+0.0	55.4	82.2	-26.8	Paral	
			+0.0	+0.0	+0.0	+0.0			Low		99	
			+9.7	+0.0	+0.0							
6	27.208M	49.6	+0.1	+0.0	+0.0	+0.3	+0.0	55.2	82.2	-27.0	Perpe	
			+0.0	+0.0	+0.0	+0.0	360		Low		99	
			+5.2	+0.0	+0.0							
7	5.597M	44.5	+0.1	+0.0	+0.0	+0.1	+0.0	54.4	82.2	-27.8	Perpe	
			+0.0	+0.0	+0.0	+0.0	357		Low		99	
			+9.7	+0.0	+0.0							
8	5.672M	43.8	+0.1	+0.0	+0.0	+0.1	+0.0	53.7	82.2	-28.5	Perpe	
			+0.0	+0.0	+0.0	+0.0			High		99	
			+9.7	+0.0	+0.0							
9	435.223M	60.9	+0.6	+0.0	+0.0	+0.0	+0.0	53.3	82.2	-28.9	Horiz	
			-28.0	+17.0	+1.4	+1.4			Low		99	
			+0.0	+0.0	+0.0							

Page 19 of 30 Report No.: 94195-12



10	439.983M	58.3	+0.6	+0.0	+0.0	+0.0	+0.0		82.2	-31.5	Vert
			-28.1	+17.1	+1.4	+1.4	360		High		168
			+0.0	+0.0	+0.0						
11	870.445M	50.3	+0.9	+0.0	+0.0	+0.0	+0.0	50.7	82.2	-31.5	Vert
			-27.5	+22.8	+2.0	+2.2	360		Low		99
			+0.0	+0.0	+0.0						
12	879.934M	50.0	+0.9	+0.0	+0.0	+0.0	+0.0	50.5	82.2	-31.7	Vert
			-27.5	+22.9	+2.0	+2.2	360		High		99
			+0.0	+0.0	+0.0						
13	439.976M	57.9	+0.6	+0.0	+0.0	+0.0	+0.0	50.3	82.2	-31.9	Horiz
			-28.1	+17.1	+1.4	+1.4			High		99
			+0.0	+0.0	+0.0				C		
14	870.434M	49.5	+0.9	+0.0	+0.0	+0.0	+0.0	49.9	82.2	-32.3	Horiz
	0,0110111	.,	-27.5	+22.8	+2.0	+2.2			Low		99
			+0.0	+0.0	+0.0						
15	879.933M	49.2	+0.9	+0.0	+0.0	+0.0	+0.0	49 7	82.2	-32.5	Horiz
10	077.7551.1	17.2	-27.5	+22.9	+2.0	+2.2	360	17.7	High	32.3	99
			+0.0	+0.0	+0.0		200		6		
16	659.979M	52.6	+0.8	+0.0	+0.0	+0.0	+0.0	49.0	82.2	-33.2	Horiz
10	037.717111	32.0	-28.3	+20.3	+1.7	+1.9	10.0	12.0	High	33.2	121
			+0.0	+0.0	+0.0	11.7			111511		121
17	652.854M	52.2	+0.8	+0.0	+0.0	+0.0	+0.0	48.5	82.2	-33.7	Horiz
1 /	032.03411	32.2	-28.3	+20.3	+1.7	+1.8	360	70.5	Low	-33.1	124
			+0.0	+0.0	+0.0	11.0	300		LOW		124
10	652.840M	51.4	+0.8	+0.0	+0.0	+0.0	+0.0	17.7	82.2	-34.5	Vert
10	032.040IVI	31.4	-28.3	+20.3	+0.0	+1.8	360	47.7	Low	-34.3	139
			+0.0	+0.0	+0.0	⊤1.6	300		LOW		139
19	3.079M	37.4	+0.0	+0.0	+0.0	+0.1	+0.0	47.2	82.2	-35.0	Paral
19	3.079W	37.4	+0.0	+0.0	+0.0	+0.1	360	47.2	Low	-33.0	99
			+9.7	+0.0	+0.0	+0.0	300		LOW		77
20	3.079M	37.3	+0.0	+0.0	+0.0	+0.1	+0.0	47.1	82.2	-35.1	Dorno
20	3.079WI	37.3	+0.0 +0.0	+0.0 +0.0	+0.0	+0.1 +0.0	+0.0 360	47.1	oz.z Low	-33.1	Perpe 99
			+9.7	+0.0	+0.0	+0.0	300		LOW		77
21	99.250M	(1.6	+0.3			. 0. 0	+0.0	16.0	82.2	25.4	<b>V</b> 4
21	88.250M	64.6	+0.5 -28.0	$+0.0 \\ +8.8$	$+0.0 \\ +0.6$	+0.0 +0.5	+0.0 360	40.8	82.2 Low	-35.4	Vert 101
						+0.3	300		LOW		101
22	2 165M	26.0	+0.0	+0.0	+0.0	<sub>+</sub> O 1	100	167	92.2	25.5	Dor
22	3.165M	36.9		+0.0	+0.0	$+0.1 \\ +0.0$	+0.0		82.2	-35.5	
			+0.0	+0.0		+0.0			High		99
22	00.15034	(2.2	+9.7	+0.0	+0.0	.00	.00	15.6	92.2	26.6	<b>V</b> I4
23	89.150M	63.3	+0.3	+0.0	+0.0	+0.0	+0.0	45.6	82.2	-36.6	Vert
			-28.0	+8.9	+0.6	+0.5	360		High		99
2.1	10.505).6	24.0	+0.0	+0.0	+0.0	0.0	0.0	44.7	02.2	27.5	D.
24	12.537M	34.8	+0.1	+0.0	+0.0	+0.2	+0.0	44.7	82.2	-37.5	Perpe
			+0.0	+0.0	+0.0	+0.0	28		Low		99
	10.77.55	212	+9.6	+0.0	+0.0	0.2	0.0	44.5	62.2	20.0	D 1
25	12.556M	34.3	+0.1	+0.0	+0.0	+0.2	+0.0	44.2	82.2	-38.0	Paral
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+9.6	+0.0	+0.0						
26	12.687M	33.6	+0.1	+0.0	+0.0	+0.2	+0.0	43.4	82.2	-38.8	Perpe
			+0.0	+0.0	+0.0	+0.0			High		99
			+9.5	+0.0	+0.0						

Page 20 of 30 Report No.: 94195-12



27	12.425M	33.2	+0.1	+0.0	+0.0	+0.2	+0.0		82.2	-39.1	Paral
			+0.0	+0.0	+0.0	+0.0	359		High		99
			+9.6	+0.0	+0.0						
28	10.209M	32.9	+0.1	+0.0	+0.0	+0.2	+0.0	43.1	82.2	-39.1	Perpe
			+0.0	+0.0	+0.0	+0.0			High		99
			+9.9	+0.0	+0.0						
29	1200.000M	55.4	+1.0	-35.9	+0.3	+0.0	+0.0	42.3	82.2	-39.9	Vert
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+0.0	+1.3	+20.2						
30	1100.100M	55.8	+1.0	-36.3	+0.3	+0.0	+0.0		82.2	-40.4	Horiz
			+0.0	+0.0	+0.0	+0.0	360		High		106
			+0.0	+1.2	+19.8						
31	30.000M	52.1	+0.2	+0.0	+0.0	+0.0	+0.0	41.8	82.2	-40.4	Vert
			-28.0	+17.0	+0.3	+0.2			Low		99
			+0.0	+0.0	+0.0						
32	2224.917M	45.1	+1.5	-34.2	+0.4	+0.0	+0.0	41.1	82.2	-41.1	Horiz
			+0.0	+0.0	+0.0	+0.0			Low		99
			+0.0	+1.8	+26.5						
33	95.360M	58.0	+0.3	+0.0	+0.0	+0.0	+0.0	41.0	82.2	-41.2	Horiz
			-27.9	+9.5	+0.6	+0.5			Low		200
			+0.0	+0.0	+0.0						
34	600.005M	45.1	+0.7	+0.0	+0.0	+0.0	+0.0	40.8	82.2	-41.4	Vert
			-28.3	+20.0	+1.6	+1.7	360		High		101
			+0.0	+0.0	+0.0						
35	1088.000M	54.9	+0.9	-36.4	+0.3	+0.0	+0.0	40.6	82.2	-41.6	Horiz
			+0.0	+0.0	+0.0	+0.0	360		Low		130
			+0.0	+1.2	+19.7						
36	1100.150M	54.5	+1.0	-36.3	+0.3	+0.0	+0.0	40.5	82.2	-41.7	Vert
			+0.0	+0.0	+0.0	+0.0			High		99
			+0.0	+1.2	+19.8				_		
37	659.956M	44.1	+0.8	+0.0	+0.0	+0.0	+0.0	40.5	82.2	-41.7	Vert
			-28.3	+20.3	+1.7	+1.9	360		High		146
			+0.0	+0.0	+0.0						
38	599.994M	44.8	+0.7	+0.0	+0.0	+0.0	+0.0	40.5	82.2	-41.7	Vert
			-28.3	+20.0	+1.6	+1.7			Low		99
			+0.0	+0.0	+0.0						
39	95.060M	57.3	+0.3	+0.0	+0.0	+0.0	+0.0	40.3	82.2	-41.9	Horiz
			-27.9	+9.5	+0.6	+0.5	360		High		207
			+0.0	+0.0	+0.0						
40	31.300k	30.4	+0.0	+0.0	+0.0	+0.0	+0.0	40.3	82.2	-41.9	Paral
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+9.9	+0.0	+0.0						
41	2224.700M	44.2	+1.5	-34.2	+0.4	+0.0	+0.0	40.2	82.2	-42.0	Horiz
			+0.0	+0.0	+0.0	+0.0			High		99
			+0.0	+1.8	+26.5						
42	31.270k	30.1	+0.0	+0.0	+0.0	+0.0	+0.0	40.0	82.2	-42.2	Paral
			+0.0	+0.0	+0.0	+0.0	132		Low		99
			+9.9	+0.0	+0.0						
43	600.004M	44.1	+0.7	+0.0	+0.0	+0.0	+0.0	39.8	82.2	-42.4	Horiz
			-28.3	+20.0	+1.6	+1.7	360		High		115
			+0.0	+0.0	+0.0				•		
-											

Page 21 of 30 Report No.: 94195-12



44	19.822M	31.7	+0.1	+0.0	+0.0	+0.2	+0.0	39.8	82.2	-42.4	Paral
			+0.0	+0.0	+0.0	+0.0	49		Low		99
			+7.8	+0.0	+0.0						
45	162.390M	54.6	+0.4	+0.0	+0.0	+0.0	+0.0	39.8	82.2	-42.4	Vert
			-27.5	+10.7	+0.8	+0.8			High		134
			+0.0	+0.0	+0.0						
46	21.049M	32.2	+0.1	+0.0	+0.0	+0.2	+0.0	39.8	82.2	-42.4	Perpe
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+7.3	+0.0	+0.0						
47	31.272k	29.9	+0.0	+0.0	+0.0	+0.0	+0.0	39.8	82.2	-42.4	Perpe
			+0.0	+0.0	+0.0	+0.0			Low		99
			+9.9	+0.0	+0.0						
48	1200.025M	52.7	+1.0	-35.9	+0.3	+0.0	+0.0	39.6	82.2	-42.6	Horiz
			+0.0	+0.0	+0.0	+0.0			Low		113
			+0.0	+1.3	+20.2						
49	800.024M	40.2	+0.8	+0.0	+0.0	+0.0	+0.0	39.5	82.2	-42.7	Horiz
.,	000.02 1111	10.2	-27.9	+22.4	+1.9	+2.1	10.0	37.5	High	12.7	99
			+0.0	+0.0	+0.0				111811		
50	31.272k	29.4	+0.0	+0.0	+0.0	+0.0	+0.0	39.3	82.2	-42.9	Perpe
30	31.272K	27.1	+0.0	+0.0	+0.0	+0.0	308	37.3	High	12.7	99
			+9.9	+0.0	+0.0	. 0.0	200		111811		
51	165.930M	54.5	+0.4	+0.0	+0.0	+0.0	+0.0	39 3	82.2	-42.9	Vert
31	103.73011	34.3	-27.5	+10.3	+0.8	+0.8	10.0	37.3	Low	72.7	101
			+0.0	+0.0	+0.0	10.0			DOW		101
52	10.225M	29.0	+0.1	+0.0	+0.0	+0.2	+0.0	39.2	82.2	-43.0	Paral
32	10.223111	27.0	+0.0	+0.0	+0.0	+0.0	360		High	-43.0	99
			+9.9	+0.0	+0.0	10.0	300		mgn		,,
53	1999.850M	43.4	+1.4	-34.3	+0.4	+0.0	+0.0	30 1	82.2	-43.1	Horiz
33	1777.030141	73.7	+0.0	+0.0	+0.0	+0.0	360	37.1	Low	- <del>1</del> 3.1	99
			+0.0	+1.7	+26.5	10.0	300		Low		,,
5/1	800.003M	39.7	+0.8	+0.0	+0.0	+0.0	+0.0	39.0	82.2	-43.2	Horiz
54	000.003IVI	37.1	-27.9	+22.4	+1.9	+2.1	360	37.0	Low	-43.2	100
			+0.0	+0.0	+0.0	12.1	300		Low		100
55	1999.867M	42.9	+1.4	-34.3	+0.4	+0.0	+0.0	38.6	82.2	-43.6	Vert
33 .	1999.007W1	42.7	+0.0	+0.0	+0.4	+0.0	+0.0	36.0	High	-43.0	99
			+0.0	+1.7	+26.5	10.0			Ingn		"
56	1200.100M	51.7	+1.0	-35.9	+0.3	±0.0	+0.0	38.6	82.2	-43.6	Horiz
50 .	1 200. I UUIVI	31.7	+0.0	+0.0		+0.0 +0.0		30.0	62.2 High	<del>-4</del> 3.0	106
			+0.0	+1.3	+20.2	10.0			111511		100
57	1200.050M	51.7	+1.0	-35.9	+0.3	+0.0	+0.0	38.6	82.2	-43.6	Vert
31.	1 200.030IVI	31.7	+1.0 $+0.0$	-33.9 +0.0	+0.3	+0.0 +0.0	+0.0	50.0	82.2 High	-43.0	99
			+0.0	+0.0	+20.2	±0.0			High		フフ
58	249.990M	50.6	+0.5	+0.0	+0.0	+0.0	+0.0	38.5	82.2	-43.7	Horiz
20	△+フ・フプUIVI	50.0	+0.3 -27.1	+12.5	+0.0 +1.0	+0.0	+0.0	20.2	oz.z Low	-43.7	99
			+0.0	+0.0	+0.0	F1.U			LOW		<b>ラ</b> フ
50	61 260M	58.7	+0.0			٦ ٨ ٨	_ΛΛΛ	29.5	82.2	127	Vort
59	61.360M	30.1	+0.2 -28.0	+0.0 +6.7	$+0.0 \\ +0.5$	$+0.0 \\ +0.4$	+0.0 1	38.5		-43.7	Vert 99
				+0.7	+0.3	+0.4	1		High		フブ
60	5 601M	29.5	+0.0			+0.1	+0.0	20 /	92.2	12.0	Dog 1
60	5.691M	28.5	+0.1	+0.0	+0.0	+0.1	+0.0	38.4	82.2	-43.8	Paral
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+9.7	+0.0	+0.0						

Page 22 of 30 Report No.: 94195-12



61	600.012M	42.6			+0.0	+0.0	+0.0	38.3	82.2	-43.9	Horiz
			-28.3	+20.0	+1.6	+1.7			Low		99
			+0.0	+0.0	+0.0						
62	499.982M	44.0	+0.7	+0.0	+0.0	+0.0	+0.0	37.7	82.2	-44.5	Horiz
			-28.2	+18.2	+1.4	+1.6			High		163
			+0.0	+0.0	+0.0						
63	62.460M	57.6	+0.2	+0.0	+0.0	+0.0	+0.0	37.4	82.2	-44.8	Vert
			-28.0	+6.7	+0.5	+0.4			Low		101
			+0.0	+0.0	+0.0						
64	249.987M	49.5	+0.5	+0.0	+0.0	+0.0	+0.0	37.4	82.2	-44.8	Horiz
			-27.1	+12.5	+1.0	+1.0	360		High		99
			+0.0	+0.0	+0.0				υ		
65	799.988M	38.1	+0.8	+0.0	+0.0	+0.0	+0.0	37.4	82.2	-44.8	Vert
-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		-27.9	+22.4	+1.9	+2.1			Low		99
			+0.0	+0.0	+0.0						
66	1999.800M	41.4	+1.4	-34.3	+0.4	+0.0	+0.0	37.1	82.2	-45.1	Horiz
00	1777.000111		+0.0	+0.0	+0.0	+0.0	360	37.1	High	13.1	99
			+0.0	+1.7	+26.5	. 0.0			111811		
67	500.000M	43.3	+0.7	+0.0	+0.0	+0.0	+0.0	37.0	82.2	-45.2	Horiz
07	300.000111	13.3	-28.2	+18.2	+1.4	+1.6	360	37.0	Low	13.2	164
			+0.0	+0.0	+0.0	11.0	300		Low		101
68	1399.967M	48.5	+1.1	-35.3	+0.3	+0.0	+0.0	37.0	82.2	-45.2	Vert
00	1377.70711	40.5	+0.0	+0.0	+0.0	+0.0	360	37.0	High	73.2	99
			+0.0	+1.4	+21.0	10.0	300		mgn		,,,
60	1400.000M	48.4	+1.1	-35.3	+0.3	+0.0	+0.0	36.0	82.2	-45.3	Vert
0)	1400.0001	70.7	+0.0	+0.0	+0.0	+0.0	10.0	30.7	Low	-43.3	99
			+0.0	+1.4	+21.0	10.0			LOW		,,
70	1374.767M	48.4	+1.1	-35.3	+0.3	+0.0	+0.0	36.8	82.2	-45.4	Vert
70	13/4./0/WI	40.4	+0.0	+0.0	+0.0	+0.0	+0.0	30.0	High	-43.4	99
			+0.0	+0.0	+20.9	+0.0			mgn		77
71	800.000M	37.4	+0.8	+0.0	+0.0	+0.0	+0.0	36.7	82.2	-45.5	Vert
/ 1	000.000WI	37.4	-27.9	+22.4	+0.0	+0.0	+0.0	30.7	High	-45.5	99
			+0.0	+0.0	+0.0	⊤∠.1			mgn		77
72	1824.183M	43.1	+1.3	-34.6	+0.3	+0.0	+0.0	26.6	82.2	-45.6	Vert
12	1624.163M	43.1	+1.5 $+0.0$	-54.0 +0.0	+0.5 +0.0	+0.0	+0.0	30.0	oz.z Low	-43.0	99
						+0.0			LOW		99
72	102/1102//	43.1	+0.0	+1.6	+24.9	ΙΟ Ο	ι Ο Ο	26.6	82.2	-45.6	Vont
13	1824.183M	43.1	+1.3 +0.0	-34.6 +0.0	+0.3		+0.0 360			-43.0	Vert 99
					+0.0	+0.0	300		High		99
7.4	1400 16714	40.1	+0.0	+1.6	+24.9	ΙΔ Ω	100	26.6	92.2	15.0	IIo!-
/4	1400.167M	48.1	+1.1	-35.3	+0.3	+0.0	+0.0	36.6	82.2	-45.6	Horiz
			+0.0	+0.0	+0.0	+0.0	360		High		99
7.5	607.0043.5	40.7	+0.0	+1.4	+21.0	. 0. 0	. 0. 0	255	02.2	45.7	77 '
75	607.984M	40.7	+0.7	+0.0	+0.0	+0.0	+0.0	36.5	82.2	-45.7	Horiz
			-28.3	+20.0	+1.6	+1.8	360		High		115
	1055 0003 5	40.0	+0.0	+0.0	+0.0			25.1	62.2	47.0	***
76	1375.000M	48.0	+1.1	-35.3	+0.3	+0.0	+0.0	36.4	82.2	-45.8	Vert
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+0.0	+1.4	+20.9						
77	608.004M	40.5	+0.7	+0.0	+0.0	+0.0	+0.0	36.3	82.2	-45.9	Vert
			-28.3	+20.0	+1.6	+1.8			High		100
			+0.0	+0.0	+0.0						

Page 23 of 30 Report No.: 94195-12



78	1400.050M	47.7		-35.3	+0.3	+0.0	+0.0	36.2	82.2	-46.0	Horiz
			+0.0	+0.0	+0.0	+0.0			Low		120
			+0.0	+1.4	+21.0						
79	699.518M	39.1	+0.8	+0.0	+0.0	+0.0	+0.0		82.2	-46.4	Vert
			-28.2	+20.5	+1.7	+1.9	360		High		99
			+0.0	+0.0	+0.0						
80	1424.750M	47.1	+1.1	-35.2	+0.3	+0.0	+0.0		82.2	-46.4	Vert
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+0.0	+1.4	+21.1						
81	1174.867M	49.0	+1.0	-36.0	+0.3	+0.0	+0.0	35.7	82.2	-46.5	Vert
			+0.0	+0.0	+0.0	+0.0	5		Low		107
			+0.0	+1.3	+20.1						
82	1225.075M	48.5	+1.0	-35.8	+0.3	+0.0	+0.0	35.7	82.2	-46.5	Horiz
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+0.0	+1.3	+20.4						
83	1174.967M	49.0	+1.0	-36.0	+0.3	+0.0	+0.0	35.7	82.2	-46.5	Vert
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+0.0	+1.3	+20.1						
84	1175.317M	49.0	+1.0	-36.0	+0.3	+0.0	+0.0	35.7		-46.5	Horiz
			+0.0	+0.0	+0.0	+0.0			High		106
			+0.0	+1.3	+20.1						
85	608.017M	39.9	+0.7	+0.0	+0.0	+0.0	+0.0	35.7	82.2	-46.5	
			-28.3	+20.0	+1.6	+1.8			Low		99
			+0.0	+0.0	+0.0						
86	1823.920M	42.0	+1.3	-34.6	+0.3	+0.0	+0.0	35.5	82.2	-46.7	Horiz
			+0.0	+0.0	+0.0	+0.0			Low		99
			+0.0	+1.6	+24.9						
87	1174.920M	48.8	+1.0	-36.0	+0.3	+0.0	+0.0	35.5	82.2	-46.7	Horiz
			+0.0	+0.0	+0.0	+0.0	360		Low		112
			+0.0	+1.3	+20.1						
88	608.010M	39.3	+0.7	+0.0	+0.0	+0.0	+0.0	35.1	82.2	-47.1	Vert
			-28.3	+20.0	+1.6	+1.8			Low		99
			+0.0	+0.0	+0.0						
89	1094.517M	48.9	+0.9	-36.3	+0.3	+0.0	+0.0	34.8	82.2	-47.4	Vert
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+0.0	+1.2	+19.8						
90	750.004M	36.6	+0.8	+0.0	+0.0	+0.0	+0.0	34.8	82.2	-47.4	Vert
				+21.5		+2.0			Low		128
			+0.0	+0.0	+0.0						
91	165.930M	49.9	+0.4	+0.0	+0.0	+0.0	+0.0	34.7	82.2	-47.5	Horiz
			-27.5	+10.3	+0.8	+0.8	2		High		164
			+0.0	+0.0	+0.0				J		
92	750.032M	36.4	+0.8	+0.0	+0.0	+0.0	+0.0	34.6	82.2	-47.6	Vert
			-28.0	+21.5	+1.9	+2.0	360		High		132
			+0.0	+0.0	+0.0				J		
93	165.920M	49.7	+0.4	+0.0	+0.0	+0.0	+0.0	34.5	82.2	-47.7	Horiz
		.,.,	-27.5	+10.3	+0.8	+0.8	360	2	Low	,	138
			+0.0	+0.0	+0.0						
94	1425.000M	45.7	+1.1	-35.2	+0.3	+0.0	+0.0	34.4	82.2	-47.8	Vert
'		,	+0.0	+0.0	+0.0	+0.0		2	Low	.,.0	99
			+0.0	+1.4	+21.1	. 0.0			2017		,,
			10.0	1 1.7	. 21.1						

Page 24 of 30 Report No.: 94195-12



95	699.630M	37.5	+0.8	+0.0	+0.0	+0.0	+0.0	34.2	82.2	-48.0	Vert
			-28.2	+20.5	+1.7	+1.9			Low		99
			+0.0	+0.0	+0.0						
96	1000.100M	49.4	+0.9	-36.8	+0.2	+0.0	+0.0		82.2	-48.0	Vert
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+0.0	+1.2	+19.3						
97	1599.800M	43.2	+1.2	-34.9	+0.3	+0.0	+0.0	33.8	82.2	-48.4	Horiz
			+0.0	+0.0	+0.0	+0.0			High		99
			+0.0	+1.5	+22.5						
98	1000.100M	48.3	+0.9	-36.8	+0.2	+0.0	+0.0	33.1	82.2	-49.1	Horiz
			+0.0	+0.0	+0.0	+0.0			High		99
			+0.0	+1.2	+19.3						
99	900.018M	32.1	+0.9	+0.0	+0.0	+0.0	+0.0	32.9	82.2	-49.3	Horiz
			-27.4	+23.0	+2.0	+2.3	360		Low		125
			+0.0	+0.0	+0.0						
100	274.997M	43.8	+0.5	+0.0	+0.0	+0.0	+0.0	32.4	82.2	-49.8	Horiz
			-27.1	+13.0	+1.1	+1.1	360		Low		99
			+0.0	+0.0	+0.0						
101	900.002M	31.6	+0.9	+0.0	+0.0	+0.0	+0.0	32.4	82.2	-49.8	Horiz
			-27.4	+23.0	+2.0	+2.3	360		High		135
			+0.0	+0.0	+0.0						
102	350.007M	41.7	+0.6	+0.0	+0.0	+0.0	+0.0	32.3	82.2	-49.9	Horiz
			-27.4	+15.0	+1.2	+1.2	360		Low		99
			+0.0	+0.0	+0.0						
103	1100.035M	46.0	+1.0	-36.3	+0.3	+0.0	+0.0	32.0	82.2	-50.2	Horiz
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+0.0	+1.2	+19.8						
104	275.011M	43.2	+0.5	+0.0	+0.0	+0.0	+0.0	31.8	82.2	-50.4	Horiz
			-27.1	+13.0	+1.1	+1.1			High		99
			+0.0	+0.0	+0.0				•		
105	349.972M	41.0	+0.6	+0.0	+0.0	+0.0	+0.0	31.6	82.2	-50.6	Horiz
			-27.4	+15.0	+1.2	+1.2			High		99
			+0.0	+0.0	+0.0				_		
106	1147.815M	45.1	+1.0	-36.1	+0.3	+0.0	+0.0	31.6	82.2	-50.6	Horiz
			+0.0	+0.0	+0.0	+0.0			Low		129
			+0.0	+1.3	+20.0						
107	1000.035M	46.7	+0.9	-36.8	+0.2	+0.0	+0.0	31.5	82.2	-50.7	Horiz
			+0.0	+0.0	+0.0	+0.0			Low		130
			+0.0	+1.2	+19.3						
108	227.560M	45.1	+0.4	+0.0	+0.0	+0.0	+0.0	31.2	82.2	-51.0	Vert
			-27.2	+11.0	+0.9	+1.0			Low		101
			+0.0	+0.0	+0.0						
109	900.016M	30.2	+0.9	+0.0	+0.0	+0.0	+0.0	31.0	82.2	-51.2	Vert
			-27.4	+23.0	+2.0	+2.3	83		High		99
			+0.0	+0.0	+0.0				-		
110	300.011M	41.2	+0.5	+0.0	+0.0	+0.0	+0.0	30.3	82.2	-51.9	Horiz
			-27.1	+13.5	+1.1	+1.1			Low		99
			+0.0	+0.0	+0.0						
111	399.991M	38.5	+0.6	+0.0	+0.0	+0.0	+0.0	30.3	82.2	-51.9	Horiz
			-27.8	+16.3	+1.3	+1.4	360		High		99
			+0.0	+0.0	+0.0				J		

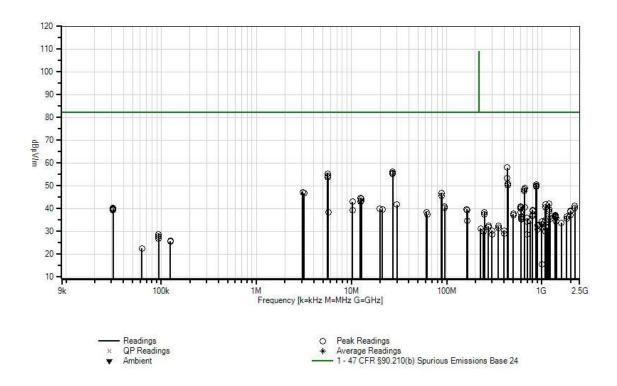
Page 25 of 30 Report No.: 94195-12



112	242.650M	42.6	+0.5	+0.0	+0.0	+0.0	+0.0	30.0		-52.2	Vert
			-27.1	+12.0	+1.0	+1.0			High		99
			+0.0	+0.0	+0.0						
113	1087.917M	44.2	+0.9	-36.4	+0.3	+0.0	+0.0	29.9	82.2	-52.3	Vert
			+0.0	+0.0	+0.0	+0.0			Low		99
			+0.0	+1.2	+19.7						
114	400.007M	37.2	+0.6	+0.0	+0.0	+0.0	+0.0	29.0	82.2	-53.2	Horiz
			-27.8	+16.3	+1.3	+1.4	360		Low		100
			+0.0	+0.0	+0.0						
115	699.991M	32.1	+0.8	+0.0	+0.0	+0.0	+0.0	28.8	82.2	-53.4	Horiz
			-28.2	+20.5	+1.7	+1.9			Low		103
			+0.0	+0.0	+0.0						
116	93.710k	19.1	+0.0	+0.0	+0.0	+0.0	+0.0	28.7	82.2	-53.5	Paral
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+9.6	+0.0	+0.0						
117	299.987M	39.6	+0.5	+0.0	+0.0	+0.0	+0.0	28.7	82.2	-53.5	Horiz
			-27.1	+13.5	+1.1	+1.1	360		High		99
			+0.0	+0.0	+0.0						
118	93.760k	19.0	+0.0	+0.0	+0.0	+0.0	+0.0	28.6		-53.6	Paral
			+0.0	+0.0	+0.0	+0.0			Low		99
			+9.6	+0.0	+0.0						
119	93.762k	18.1	+0.0	+0.0	+0.0	+0.0	+0.0	27.7	82.2	-54.5	Perpe
			+0.0	+0.0	+0.0	+0.0			Low		99
			+9.6	+0.0	+0.0						
120	93.621k	17.3	+0.0	+0.0	+0.0	+0.0	+0.0	26.9	82.2	-55.3	Perpe
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+9.6	+0.0	+0.0						
121	125.070k	16.4	+0.0	+0.0	+0.0	+0.0	+0.0	25.9	82.2	-56.3	Paral
			+0.0	+0.0	+0.0	+0.0			Low		99
			+9.5	+0.0	+0.0						
122	124.931k	16.0	+0.0	+0.0	+0.0	+0.0	+0.0	25.5	82.2	-56.7	Perpe
			+0.0	+0.0	+0.0	+0.0			Low		99
			+9.5	+0.0	+0.0						
123	62.530k	13.0	+0.0	+0.0	+0.0	+0.0	+0.0	22.6	82.2	-59.6	Paral
			+0.0	+0.0	+0.0	+0.0	360		High		99
			+9.6	+0.0	+0.0						
124	999.917M	50.3	+0.9	-36.8	+0.0	+0.0	+0.0	15.6	82.2	-66.6	Vert
			+0.0	+0.0	+0.0	+0.0	360		Low		99
			+0.0	+1.2	+0.0						
-											



CKC Laboratories, Inc. Date: 3/13/2013 Time: 08:57:14 Meteorcomm LLC. WO#: 94195 Test Distance: 3 Meters Sequence#: 8 Horiz Meteorcomm LLC. Base 24V P/N: 63030-24





## **Test Setup Photos**





# **SUPPLEMENTAL INFORMATION**

## **Measurement Uncertainty**

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

### **Emissions Test Details**

#### **TESTING PARAMETERS**

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

#### **CORRECTION FACTORS**

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in  $dB\mu V/m$ , the spectrum analyzer reading in  $dB\mu V$  was corrected by using the following formula. This reading was then compared to the applicable specification limit.

Page 29 of 30 Report No.: 94195-12



SAMPLE CALCULATIONS							
	Meter reading (dBμV)						
+	Antenna Factor	(dB)					
+	Cable Loss	(dB)					
-	Distance Correction	(dB)					
-	- Preamplifier Gain (dB)						
=	Corrected Reading	(dBμV/m)					

#### TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE							
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING				
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz				
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz				
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz				
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz				
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz				

#### SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("A") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

#### Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

#### **Quasi-Peak**

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

#### **Average**

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.

Page 30 of 30 Report No.: 94195-12